



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/611,866	07/03/2003	Chikako Sekiya	239820US2	3854
22850	7590	12/19/2005	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			CROWELL, ANNA M	
			ART UNIT	PAPER NUMBER
			1763	

DATE MAILED: 12/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/611,866

Applicant(s)

SEKIYA, CHIKAKO

Examiner

Michelle Crowell

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 September 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Status of Claims*

Claims 1-10 are pending in the application. Claims 1-10 are rejected.

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-4, 6, and 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okawa et al. (J.P. 2000349070) in view of Herchen et al. (U.S. 6,264,852) and Saito et al. (WO00/13219).

U.S. 6,562,186 will be used as the English translation for WO00/13219.

Referring to Figures 1 and 3 and column 3, line 53-column 6, line 26, Okawa et al. discloses a plasma treatment apparatus comprising: a vacuum vessel 1 that houses an article W to be treated and into which a treatment gas is introduced (col. 3, lines 53-57); a lower electrode 3 that is provided inside the vacuum vessel and onto which is placed the article to be treated (col. 3, lines 53-57); an upper electrode main body 2A that is provided above the lower electrode to form a plasma region in the vacuum vessel, the upper electrode main body having formed therein an opening through which passes light for detecting an extent of progress of plasma treatment of

Art Unit: 1763

the article to be treated in the plasma region (col. 3, lines 53-67, col. 4, lines 39-42); an upper electrode cover 2B that is joined to a lower surface of the upper electrode main body and faces the plasma region, the upper electrode cover having formed therein a hole at a location corresponding to the opening of the upper electrode main body (col. 4, lines 43-45); a sensor 5 that detects the extent of progress of plasma treatment of the article to be treated by detecting changes in intensity of reflected light from the article to be treated (col. 4, lines 1-29); a tubular member 4a that is provided in the vacuum vessel with a lower end thereof inserted in the opening 2E (Fig. 1); and a window member 4 that is made of a transparent member 4C which is a separate body to the upper electrode cover, and is removable (col. 3, lines 61-62, col. 4, lines 63-64.

Okawa et al. fails to teach that the window member is fitted in the hole of the cover.

Referring to Figures 2, column 8, lines 46-67, Herchen et al. teaches it is conventionally known in the art for a window member 170 to be fitted in a cover 130 as an alternate and equivalent way to effectively monitor the substrate's progress (col. 7, lines 45-63). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention for the window member to be fitted in the upper electrode cover of Okawa et al. as taught by Herchen et al. since it is an alternate and equivalent way of effectively monitor the substrate's progress.

With respect to claim 3, regarding the shape of the hole and the upper electrode cover window member, referring to column 8, lines 46-50, Herchen et al. teaches the shape of the hole and the upper electrode cover window member can take any shape in order to maximize the portion of the window through which a nearly vertical light beam can pass through the window. Thus, it would have been obvious to one of ordinary skill at the time of the invention for the hole

Art Unit: 1763

and the upper electrode cover window member of Okawa et al. in view of Herchen et al. to have the claimed 7 and 8 shape in order to maximize the portion of the window through which a nearly vertical light beam can pass through the window. Additionally, the shape of the hole and the upper electrode cover window member is considered a matter of choice which a person of ordinary skill in the art would have found obvious absent persuasive evidence that the particular the shape of the hole and the upper electrode cover window member was significant (In re Dailey, 357 F.2d 669, 149 USPQ 47 (CCPA 1966)).

With respect to claim 4, the hole 2F of Okawa et al. opens into the plasma region (Fig. 1).

With respect to claim 6, referring to Figures 1 and 3 and column 3, line 53-column 6, line 26, Okawa et al. discloses an upper electrode cover member for a plasma treatment apparatus comprising: a vacuum vessel 1 that houses an article W to be treated and into which a treatment gas is introduced (col. 3, lines 53-57); a lower electrode 3 that is provided inside the vacuum vessel and onto which is placed the article to be treated (col. 3, lines 53-57); an upper electrode main body 2A that is provided above the lower electrode to form a plasma region in the vacuum vessel, the upper electrode main body having formed therein an opening through which passes light for detecting an extent of progress of plasma treatment of the article to be treated in the plasma region (col. 3, lines 53-67, col. 4, lines 39-42); and an upper electrode cover 2B that is joined to a lower surface of the upper electrode main body and faces the plasma region, the upper electrode cover having formed therein a hole 2F at a location corresponding to the opening of the upper electrode main body (Fig. 1); a sensor 5 that detects the extent of progress of plasma treatment of the article to be treated by detecting changes in intensity of reflected light from the article to be treated (col. 4, lines 1-29); a tubular member 4a that is provided in the vacuum

Art Unit: 1763

vessel with a lower end thereof inserted in the opening 2E (Fig. 1); wherein: a window member 4 that is made of a transparent member 4C which is a separate body to the upper electrode cover, and is removable (col. 3, lines 61-62, col. 4, lines 63-64).

Okawa et al. fails to teach that the upper electrode cover window member has shape such that the window member is fitted in the hole of the cover.

Referring to Figures 2, column 8, lines 46-67, Herchen et al. teaches it is conventionally known in the art for a window member 170 to be fitted in a cover 130 as an alternate and equivalent way to effectively monitor the substrate's progress (col. 7, lines 45-63). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention for the window member to be fitted in the upper electrode cover of Okawa et al. as taught by Herchen et al. since it is an alternate and equivalent way of effectively monitor the substrate's progress.

With respect to claim 8, regarding the shape of the hole and the upper electrode cover window member, referring to column 8, lines 46-50, Herchen et al. teaches the shape of the hole and the upper electrode cover window member can take any shape in order to maximize the portion of the window through which a nearly vertical light beam can pass through the window. Thus, it would have been obvious to one of ordinary skill at the time of the invention for the hole and the upper electrode cover window member of Okawa et al. in view of Herchen et al. to have the claimed 7 and 8 shape in order to maximize the portion of the window through which a nearly vertical light beam can pass through the window. Additionally, the shape of the hole and the upper electrode cover window member is considered a matter of choice which a person of ordinary skill in the art would have found obvious absent persuasive evidence that the particular

Art Unit: 1763

the shape of the hole and the upper electrode cover window member was significant (In re Dailey, 357 F.2d 669, 149 USPQ 47 (CCPA 1966)).

With respect to claim 9, the upper electrode cover window member 4 of Okawa et al. is made of quartz 4C (col. 5, lines 16-22).

3. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Okawa et al. (J.P. 2000349070) in view of Herchen et al. (U.S. 6,264,852) as applied to claims 1-4, 6, and 8-9 above, and further in view of Ueda et al. (J.P. 08107102).

The teachings of Okawa et al. in view of Herchen et al. have been discussed above.

Okawa et al. in view of Herchen et al. fail to teach that the upper electrode cover is made of quartz.

Referring to the abstract, Ueda et al. teaches that it is conventionally known in the art for the upper electrode cover 14 to be made of quartz in order to reduce particle contamination. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention for the upper electrode cover of Okawa et al. in view of Herchen et al. to be made of quartz as taught by Ueda et al. in order to reduce particle contamination.

4. Claims 7 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okawa et al. (J.P. 2000349070) in view of Herchen et al. (U.S. 6,264,852) as applied to claims 1-4, 6, and 8-9 above, and further in view of Howald et al. (U.S. 6,074,516).

The teachings of Okawa et al. in view of Herchen et al. have been discussed above.

With respect to claim 7, Okawa et al. in view of Herchen et al. fails to teach the hole has a lower portion having a reduced diameter and an upper portion having an increased diameter, and the upper electrode cover window member has a lower portion having a reduced diameter and an upper portion having an increased diameter that can be fitted in the lower portion and upper portion of the hole respectively.

Referring to Figure 4 and column 6, lines 51-59, Howald et al. teaches it is known for the hole to have a lower portion having a reduced diameter and an upper portion having an increased diameter, and the upper electrode cover window member 302 has a lower portion having a reduced diameter and an upper portion having an increased diameter that can be fitted in the lower portion and upper portion of the hole respectively in order to prevent a vacuum leak around the upper electrode cover window member. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention for the hole and upper electrode cover window member of Okawa et al. in view of Herchen et al. to have a the hole has a lower portion 35 having a reduced diameter and an upper portion having an increased diameter, and the upper electrode cover window member has a lower portion having a reduced diameter and an upper portion having an increased diameter that can be fitted in the lower portion and upper portion of the hole respectively as taught by Howald et al. in order to prevent a vacuum leak around the upper electrode cover window member. Additionally, the shape of the hole and the upper electrode cover window member is considered a matter of choice which a person of ordinary skill in the art would have found obvious absent persuasive evidence that the particular the shape



Art Unit: 1763

of the hole and the upper electrode cover window member was significant (In re Dailey, 357 F.2d 669, 149 USPQ 47 (CCPA 1966)).

With respect to claim 10, Okawa et al. in view of Herchen et al. fails to teach the upper electrode cover window member is made of sapphire.

Referring to column 5, lines 17-30, Howald et al. teaches the upper electrode cover window member 302 is made of sapphire since it is a known transparent material used for plasma monitoring and sapphire is highly resistant to plasma. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention for the material of the upper electrode cover window member of Okawa et al. in view of Herchen et al. to be made of sapphire as taught by Howald et al. since it is a known transparent material used for plasma monitoring and sapphire is highly resistant to plasma.

### ***Response to Arguments***

5. Applicant's arguments filed September 28, 2005 have been fully considered but they are not persuasive.

Applicant has argued that Okawa fails to teach that the window member is removable fitted in a hole of an upper electrode cover; however, it should be noted that claims 1, 2, and 6 are rejected by the combination of Okawa et al. in view of Herchel et al. In column 4, lines 63-64 and column 5, lines 39-43, Okawa et al. teaches that it is conventionally known in the art for a window member 4 to be removably fitted in a hole of an upper electrode body. In column 8, lines 50-51, Herchel et al. teaches that a window member 170 is a separate body (insert) which

Art Unit: 1763

can be fitted into the upper electrode cover. Thus, the combination of Okawa et al. in view of Herchel et al. teaches that the window member can be removably fitted in a hole of an upper electrode cover.

### *Conclusion*

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michelle Crowell whose telephone number is (571) 272-1432. The examiner can normally be reached on M-F (9:30 -6:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on (571) 272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1763

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*ame*  
Michelle Crowell  
Patent Examiner  
Art Unit 1763

*pk*  
Parviz Hassanzadeh  
Supervisory Patent Examiner  
Art Unit 1763